AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): An apparatus for reducing the post-detonation pressure of a perforating gun, the apparatus comprising:

[[a]]the perforating gun carrying at least one explosive charge, wherein when the explosive charge is detonated the explosive charge produces a pressurized detonation gas; and

a pressure reducer in functional connection with the perforating gun, the pressure reducer including a heat sink adapted for rapidly reducing the temperature of the detonation gas ~~adapted to reduce the pressure of the detonation gas~~.

2. (original): The apparatus of claim 1 wherein the pressure reducer is positioned proximate the perforating gun.

3. (previously presented): The apparatus of claim 1 wherein the pressure reducer is positioned in the perforating gun.

4. (original): The apparatus of claim 1 wherein the pressure reducer is part of the perforating gun.

5. (canceled):

6. (currently amended): The apparatus of claim [[5]] 1 wherein the heat sink has a high thermal conductivity.

7. (currently amended): The apparatus of claim [[5]] 1 wherein the heat sink has a large heat capacity.

8. (currently amended): The apparatus of claim [[5]] 1 wherein the heat sink includes copper.

9. (currently amended): The apparatus of claim [[5]] 1 wherein the heat sink includes water.

10. (currently amended): The apparatus of claim [[5]] 1 wherein the heat sink includes microencapsulated water beads.

11. (currently amended): ~~The apparatus of claim 1~~ An apparatus for reducing the post-detonation pressure of a perforating gun, the apparatus comprising:

the perforating gun carrying at least one explosive charge, wherein when the explosive charge is detonated the explosive charge produces a pressurized detonation gas; and

a pressure reducer in functional connection with the perforating gun, wherein the pressure reducer includes a reactant adapted for recombining with the detonation gas to reduce the molar density of the detonation gas.

12. (original): The apparatus of claim 11 wherein in the reactant is selected from the group consisting of Al, Ca, Li, Mg, Ta, Ti, Zr, and combinations thereof.

13. (currently amended): The apparatus of claim 11, wherein the pressure reducer further includes a pressure compression section in functional connection with [[a]] the perforating gun.

14. (original): The apparatus of claim 13 wherein the compression section includes a compressible material.

15. (original): The apparatus of claim 14 wherein the compressible material is a spring.

16. (original): The apparatus of claim 14 wherein the compressible material is a solid.

17. (original): The apparatus of claim 14 wherein the compressible material is a fluid.

18. (canceled)

19. (original): The apparatus of claim 11 wherein the pressure reducer is positioned proximate the perforating gun.

20. (original): The apparatus of claim 14 wherein the pressure reducer is positioned proximate the perforating gun.

21. (canceled)

22. (previously presented) The apparatus of claim 11 wherein the pressure reducer is positioned in the perforating gun.

23. (previously presented): The apparatus of claim 14 wherein the pressure reducer is positioned in the perforating gun.

24. (canceled)

25. (original): The apparatus of claim 11 wherein the pressure reducer is part of the perforating gun.

26. (original): The apparatus of claim 14 wherein the pressure reducer is part of the perforating gun.

27.-45. (canceled)

46. (currently amended): A method of reducing the post-detonation pressure of a perforating gun comprising the steps of:

providing [[a]] the perforating gun [[having]] with explosive charges;

providing a heat sink in functional connection with the perforating gun;

detonating the explosive charges producing a pressurized detonation gas; and

reducing the detonation gas pressure proximate the perforating gun to encourage a surge flow from a reservoir formation by rapidly reducing the temperature of the detonation gas via the heat sink.

47.-50. (canceled)

51. (currently amended): The method of claim 46, further including the steps of: ~~wherein the step of reducing the gas pressure includes the~~

providing a compression section in functional connection with the perforating gun; and further [[for]] reducing the pressure of the detonation gas via the compression section.

52. (currently amended) ~~The method of claim 46 wherein including the step of reducing the gas pressure includes~~ A method of reducing the post-detonation pressure of a perforating gun comprising the steps of:

providing the perforating gun with explosive charges;

providing a reactant adapted for recombining ~~with~~ the detonation gas from detonation of the explosive charges to form solids;

detonating the explosive charges producing a pressurized detonation gas; and

reducing the detonation gas pressure proximate the perforating gun, by recombining the detonation gas to form solids, to encourage a surge flow from a reservoir formation.

53. (currently amended): The method of claim [[50]] 46 wherein the heat sink includes copper.

54. (currently amended): The method of claim [[50]] 46 wherein the heat sink includes water.

55. (original): The method of claim 51 wherein the compression section includes a compressible spring.

56. (original): The method of claim 51 wherein the compression section includes a compressible fluid.

57. (original): The method of claim 51 wherein the compression section includes a compressible solid.

58. (currently amended): The method of claim [[51]] 52 wherein [[in]] the reactant is selected from the group consisting of Al, Ca, Li, Mg, Ta, Ti, Zr, and combinations thereof.

59. (new): The method of claim 52, further including the steps of:
providing a heat sink in functional connection with the perforating gun; and
further reducing the temperature of the detonation gas.

60. (new): The method of claim 59, wherein the heat sink includes copper.

61. (new): The method of claim 59, wherein the heat sink includes water.

62. (new): The method of claim 59, wherein the heat sink includes microencapsulated water beads.

63. (new): The apparatus of claim 11, further including a heat sink adapted to rapidly reduce the temperature of the detonation gas.

64. (new): The apparatus of claim 11, wherein the heat sink includes copper.

65. (new): The apparatus of claim 11, wherein the heat sink includes water.

66. (new): The apparatus of claim 11, wherein the heat sink includes microencapsulated water beads.